

AMENDMENTS TO THE CLAIMS:

1. - 25. (Canceled).

26. (Currently Amended) A work machine, comprising:

an operator cabin; and

an air-treatment system including:

a cooling circuit;

a first heat exchanger in thermal communication with the cooling circuit;

a secondary circuit in thermal communication with the heat exchanger, the secondary circuit operable to selectively transfer heat between the operator cabin of the work machine and at least one of the cooling circuit and the first heat exchanger; and

a controller in communication with at least one of the cooling circuit, the first heat exchanger, and the secondary circuit, the controller operable to receive at least one input indicative of a desired ambient condition of the operator cabin, a current ambient condition of the operator cabin, and of at least one of a cooling circuit operation and a secondary circuit operation, and operable to change the operation of at least one of the cooling circuit and the secondary circuit when the current ambient condition of the operator cabin is outside of a desired ambient condition range.

27. (Currently Amended) The work machine of claim 26, further including:
a sleeping cabin, wherein the controller is operable to receive input indicative of a desired ambient condition of the sleeping cabin, operable to receive input indicative of a current ambient condition of the sleeping cabin, and operable to change the operation of at least one of the cooling circuit and the secondary circuit when the current ambient condition of the sleeping cabin is outside of a desired ambient condition range.
28. (Currently Amended) The work machine of claim 26, further including at least one heating circuit in fluid communication with the secondary circuit.
29. (Currently Amended) The work machine of claim 28, further including a second heating circuit connected to the at least one heating circuit, the second heating circuit having an engine and the fluid from the at least one heating circuit being selectively allowed to flow through the second heating circuit to impart heat to the engine.
30. (Currently Amended) A method of treating ambient air in a work machine, comprising:
operating a cooling circuit to cool a refrigerant;
operating a secondary circuit to selectively transfer heat from at least one of an operator cabin and a sleeping cabin of the work machine to the cooled refrigerant;
receiving input indicative of a desired ambient condition;

receiving input indicative of a current ambient condition;
receiving input indicative of at least one of a cooling circuit operation and a secondary circuit operation;
changing at least one of the cooling circuit operation and the secondary circuit operation when the desired ambient condition is outside of a desired ambient condition range.

31. (Original) The method of claim 30, further including operating a heating circuit in fluid communication with the secondary circuit to selectively transfer heat to at least one of the operator cabin and the sleeping cabin.

32. (Previously Presented) The method of claim 31, further including operating a second heating circuit in fluid communication with the heating circuit and the secondary circuit to selectively transfer heat to at least one of an operator cabin and a sleeping cabin.

33. (Original) The method of claim 32, further including allowing a flow of heated fluid from the heating circuit to the second heating circuit to heat an engine.

34. (Original) The method of claim 30, further including heating the flow of air after removing humidity with the cooled fluid in the secondary circuit and then directing the flow of air to the operator cabin.

35. (New) An air-treatment system, comprising:
- a cooling circuit;
- a first heat exchanger in thermal communication with the cooling circuit;
- a secondary circuit in thermal communication with the first heat exchanger, a first area, and a second area, the secondary circuit operable to selectively transfer heat between the first heat exchanger and the first area or the second area; and
- a controller in communication with at least one of the cooling circuit, the first heat exchanger, and the secondary circuit, the controller having storage medium storing a desired ambient condition range, the controller operable to:
- receive a first set of values indicative of a first current ambient condition and a first desired ambient condition of the first area and a second set of values indicative of a second current ambient condition and a second desired ambient condition of the second area,
- based on the received first and second sets of values, determine that the first current ambient condition or the second current ambient condition is outside of the desired ambient condition range, and
- initiate a transfer of heat between the first heat exchanger and the first area or between the first heat exchanger and the second area based on the determination and the first or second desired ambient conditions.
36. (New) The air-treatment system of claim 35, wherein the value indicative of the first current ambient condition includes a solar load.

37. (New) The air-treatment system of claim 36, wherein the solar load is the intensity of solar light.

38. (New) The air-treatment system of claim 35, wherein the cooling circuit includes:

a compressor;
a condenser in fluid communication with the compressor; and
an expansion valve in fluid communication with the condenser.

39. (New) The air-treatment system of claim 35, further including:
a second expansion valve in fluid communication with the condenser; and
a second heat exchanger in fluid communication with the second expansion valve and the compressor.

40. (New) The air-treatment system of claim 35, wherein the secondary circuit includes:
at least one pump;
at least one heat exchanger in fluid communication with the pump; and
at least one fan proximally disposed relative to the at least one heat exchanger, the fan operable to cause a flow of air across the at least one heat exchanger.

41. (New) The air-treatment system of claim 35, further including a heating device proximally disposed relative to the at least one heat exchanger and fan, wherein the airflow from the fan is first directed across the at least one heat exchanger and subsequently the heating device.

42. (New) The air-treatment system of claim 35, wherein the values indicative of the first or second current ambient conditions includes at least one of an air temperature and a fan speed.

43. (New) The air-treatment system of claim 35, wherein the values indicative of the first or second desired ambient conditions includes at least one of a temperature, a treatment mode, and a fan speed.

44. (New) The air-treatment system of claim 43, wherein the treatment mode includes at least one of a cooling mode, a defrost mode, and a ventilation mode.